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WILDLIFE IN THE FARM PROGRAM

SIMPLE METHODS BY WHICH
FARMERS AND SPORTSMEN CAN IMPROVE WILDLIFE
HABITATS ON AGRICULTURAL LANDS

By

JAMES N. MORTON

ASSISTANT DIRECTOR OF THE BUREAU OF REFUGES AND LANDS
PENNSYLVANIA GAME COMMISSION

Bulletin No. 16

1938

Photo by Dr. C. S. Apgar

Happy and contented is the farm boy where wildlife is abundant.

"And certain fields and certain trees were loyal friends to me,
And I knew the birds, and I owned a dog, and we both could hear and see.
Oh, never from tongues of men have dropped such messages wholly glad
As the things that live in the great outdoors once told to a little lad."

—EDGAR A. GUEST.

Foreword

PUBLIC INTEREST in wildlife conservation has increased tremendously during the past few years. This awakened public interest has resulted in the restoration of wildlife being considered one of the major problems of our Government. An evidence of the importance of it was demonstrated recently by the action of the President of the United States in designating, by proclamation, "Wildlife Restoration Week" for the purpose of stimulating additional interest in the important subject.

As people have become more concerned in this vital problem, a desire to do something about it has been created. One of the ways in which many people are eager to assist is in providing a better environment for wildlife. Many requests are received for information concerning this very important phase of the work. Providing better homes for wildlife is correctly recognized, by those who are interested, as one of the most essential considerations in any game management program.

People in the rural sections and those who hunt in agricultural areas are particularly concerned, as the problem is most pressing in those parts of the State. This bulletin, therefore, has been prepared in the hope that it will be of assistance to farmers, sportsmen, and others in Pennsylvania who are interested in making the farming sections more attractive to wildlife by providing it with better conditions under which to live. It is believed that these suggestions have substantial practical application, and that if applied diligently, will result in a material increase of our valuable wildlife. If this be the case, then those of us who have worked on the preparation of the material will have been amply rewarded.

Every attempt has been made to present the subject matter in a style that everyone can readily understand, avoiding the use of technical terms.

I am pleased to record my gratitude for the assistance rendered by the Executive Director, who read the contents a number of times and offered helpful advice, suggestions, and criticisms, and to the many members of the staff in Harrisburg who so cheerfully aided by suggestions and improvements. The assistance of L. A. Mackey, of the Harrisburg Office, who made all of the drawings used in the illustrations, and of W. L. R. Drake who assisted with pictures, were most helpful in presenting clearly the ideas and suggestions herein contained.

JAMES N. MORTON

Photo by W. L. R. Drake

A great many trees, shrubs and vines produce nuts, fruit and seeds relished by wildlife and they are also ornamentally attractive either from the standpoint of flowers foliage or fruit.

Photo by W. L. R. Drake

Grains are essential in furnishing solid foods for wildlife. Some of these are shown in the above illustration.

Introduction

A certain conflict of interest has been developed between the farmers and sportsmen over a period of years. This has been caused largely by a very small group of hunters who have disregarded the rights of the landowner; who have torn down fences, injured livestock, and in many other ways made themselves objectionable. In order to protect himself the farmer posted his land against trespass, and thereby excluded the good sportsman who is in reality a friend of the landowner, the very one who could be of assistance in protecting him from the acts of the thoughtless hunters.

Sportsmen Would Aid Landowners—As a means of bringing back the cordial relations which formerly existed between the two groups, and at the same time arranging for measures to restore some of the favorable game habitat which a few years ago was found in abundance, the Pennsylvania Federation of Sportsmen, at their meeting February 12, 1938, endorsed the preparation of this pamphlet designed to help farmers and sportsmen interested in improving conditions for wildlife on Pennsylvania's 190,000 farms. Organized sportsmen in several counties are already making plans for county wide cooperation with land owners to improve the homes for wildlife in their respective districts.

By far the largest percentage of sportsmen in Pennsylvania are interested in hunting what is usually referred to as farm game, such as quail, rabbits, and ringneck pheasants. The scarcity or abundance of these species depends to a great extent upon the amount and distribution of the food and cover found within their respective ranges. Where there is a lack of proper game food and insufficient cover, the game crop or supply will not increase regardless of the fact that birds raised at Game Farms are released, or that predators are kept under control, or that good game laws are enforced by an efficient corps of high trained protection officers.

Wildlife Dependent Upon Farm Practices—It follows, therefore, that farmers to a great extent in their agricultural pursuits have a certain amount of control over the supply of these farm game species, as well as such forest game which is found in or near their woodlots. As a general rule, farmers are extremely interested in wildlife, which fact is evidenced in many different ways. This interest is manifested in the winter feeding of game, control of predators, and in taking care of young birds or animals left motherless. Quite often they do not, however, realize the effect of certain farm practices on the welfare of game birds and animals, or their effect on seed-eating and insectivorous birds.

There are scarcely any farms which cannot be made more attractive to wildlife with the exercise of a little thoughtful planning. As a guide for improving the habitat for farm game species, a number of suggestions are herein outlined which, if followed, will improve conditions for wildlife, and at the same time many of them will result in direct benefits to the landowner.

Photo by W. L. R. Drake

An example of clean farming where wildlife has little chance to survive.

Game Food and Cover

Any farmer knows that to raise crops he must save some good, virile seed stock for planting the next year, and that he must carefully care for the young plants that the seeds produce. In this way only can he hope to harvest a good crop each year. The forester or timberland manager knows that to harvest the maximum crop of trees he must carefully protect the young shoots which spring up when older trees are cut, that he must leave seed trees of certain species, and that these must be provided with suitable conditions under which to exist.

The same principle applies to game crops. In order that a maximum crop may be harvested each hunting season, some attention must be paid to it during the balance of the year. It is certainly impossible to reap a bumper game crop each year by ignoring the seed stock and the young produced by it until the time for the next harvest, which is the customary hunting season. Constant attention to its needs is necessary. Wildlife's two fundamental and most necessary requirements are a food supply and adequate cover. Just as the plants on the farm or in the forest require definite conditions for growth, so do birds and animals need proper conditions to influence their development and to assist them in raising young.

Good Results Obtained Without Expenditures—Farm game development does not necessarily require an expenditure of money on the part of the farmer. Good results, however, can be obtained if he will refrain from doing certain things that are detrimental to wildlife, such as burning pastures, cutting all growth along fences and gullies, grazing all of the woodlot, and other practices.

Utilizing Waste Spaces—Experience has shown that it is nearly always possible to increase the supply of wildlife, even on heavily tilled areas, without interfering with the customary crops grown there. It is simply a matter of utilizing waste places—eroded gullies, fence corners, creek bottoms, woodlots, wasteland, etc.—so that wildlife will have sufficient food and cover.

In other words, wildlife management is not a practice that must

be conducted independently on the farm. It can be made a part of the many other farm and soil erosion control operations.

It is only too true that the best wildlife management on the farm quite often is not the things done at special expense for that purpose, but of carrying on the usual farm operations in a way to protect and encourage wildlife rather than to destroy it.

What game requires primarily is a favorable habitat, a good home. This favorable condition can be secured only by providing suitable food and ample cover. As already indicated, wildlife management, to a great extent, is a problem of food supply and adequate cover.

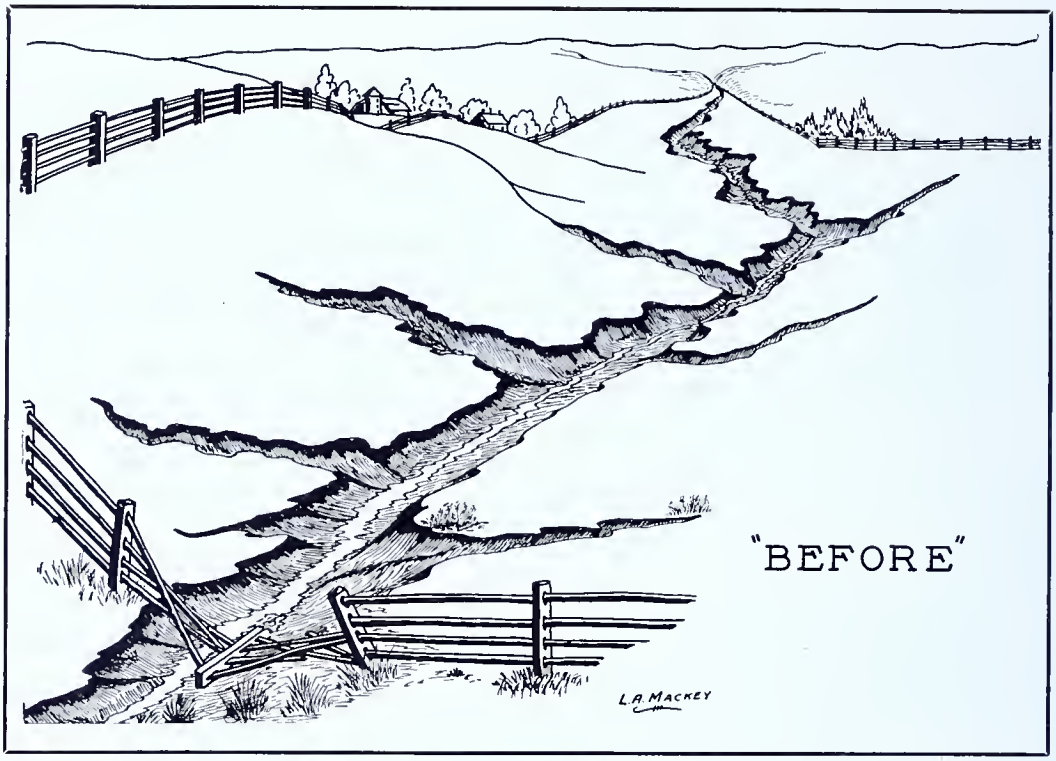
What Constitutes Food and Cover—Wildlife food is an assortment of food-producing plants which provide a variety of berries, nuts, seeds, etc., during all seasons of the year. Various species of game need an assortment of food in order to meet their individual requirements. In this respect they do not differ materially from humans.

Cover for wildlife is a broad term, and includes such items as winter cover, refuge cover, escape cover, nesting cover, roosting cover, and resting cover briefly described on the following page. Various types of growth are required within the limits of the area over which the species travel in order to secure the desired cover conditions. The use of various types of cover is not merely a matter of choice, but is essential for the welfare of wildlife.

Uniform cover conditions have a tendency to limit the number of species, or the number of individuals, or both, whereas an assortment often increases the number of both species and individuals. This means that a farm having an ungrazed woodlot, brushy gully, grown up fence rows, wooded swamp, grassy swale,

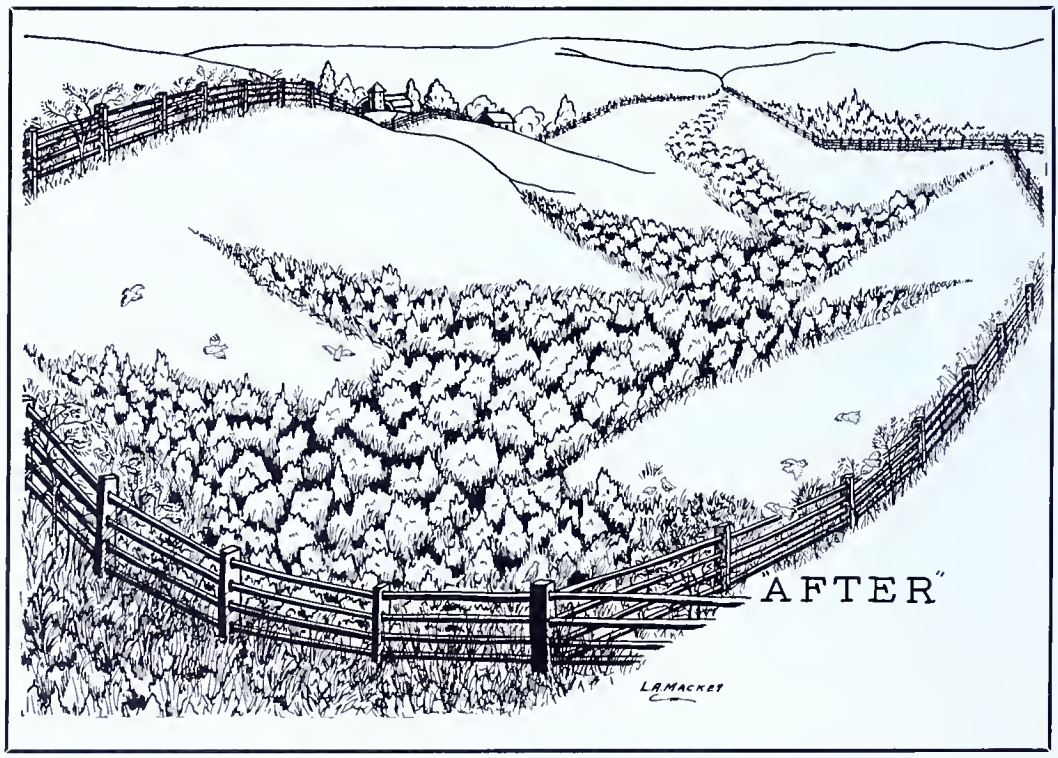
Photo by W. L. R. Drake

An excellent fence row of shrubs and briars which furnishes quail and other wildlife with a safe highway along which to travel from place to place. It likewise provides them with a food supply and the necessary hiding place while making a temporary home in the vicinity.



Gullies are usually caused by lack of vegetation to bind the soil. The absence of plant life results in the destruction of valuable soil and an increase in the size of the eroded area. Gullies without brush or briars provide no homes for valuable wildlife.

Gullies such as shown above can be prevented by fencing against pasturing and by suitable plantings. The cover conserves the soil and provides a haven for wildlife. A desirable place to establish a retreat refuge.



weeds, standing corn, standing clover and crop stubble can support much more wildlife than a farm that has only stubble fields, standing grain, or any other uniform habitat used by wildlife.

To be of most value for wildlife cover must also be distributed throughout the area and the various coverts must be connected by brushy lanes for use of wildlife in moving from place to place.

Winter Cover furnishes protection during winter from severe weather and from enemies. Clumps of evergreens planted close together are valuable in this connection. Dense thickets of low willows and hawthorn or plum thickets are also good winter cover.

Refuge Cover includes such material as will provide a refuge or haven of safety from which game cannot easily be driven by hunters. Dense willow thickets, boggy marshes overgrown with such material as reeds and sedges, or thick undergrowth in woodlots furnishes good cover. A farm should have as many of these dense thickets as possible.

Escape Cover is a heavy growth of thorny shrubs, vines, briars, etc., where birds and animals may escape their predatory enemies, such as hawks and owls.

Nesting Cover is vegetation such as weeds, brush, grasses and grains, where birds locate their nests. In order that young birds may have an opportunity to mature, it is desirable to prevent as much as possible the destroying of early nests. Game birds are nesting before the new growth of the year has reached a size sufficient to furnish protection. A lack of nesting protection greatly increases the chances of the nests being broken up. If their nest is destroyed they will, however, usually continue to reset a number of times until a nesting is successful. In order to insure early undisturbed nesting it is, therefore, essential to provide nesting cover from the growth of the previous year. Leaving the outer two or three swaths of the hayfield uncut on one or two sides of the fields will provide sites for nesting. It is preferable to leave uncut and unplowed the strips along gullies, swales or stream banks rather than along fences because the fence posts will give an advantage to crows searching for eggs.

Roosting Cover for farm game species usually consists of dense growth, such as thickets of evergreens, hawthorn or plum thickets, rank growth of meadow grass, briars, willow, etc.

Resting Cover is vegetation which provides shade in summer or a small opening near dense cover which will be sunny in winter and give protection from wind.

Travel Lanes—In addition to the types of cover to which reference has been made, there is also a decided need for travel lanes. Travel lanes serve wildlife and are as necessary to it as our highways are to us. Each farm, by all means, should have a good system of travel lanes. These are narrow strips of cover connecting two separate clumps of cover or connecting the roosting or nesting cover with the feeding ground. They consist of brushy fence lines, strips of hay or grass and gullies or stream banks where there is a growth of shrubs, vines and weeds. A few feet around the outside edges of the hay or grain fields left uncut serve as good travel lanes and provide food during fall, winter, and spring.

Photo by Seth Gordon

This area could have been made more useable for wildlife if some cover had been left along the fence row and if a few rows or shocks of unhusked corn had been left standing.

Producing Food and Cover Naturally

In order to provide better natural food and cover conditions, farmers, wherever possible, should leave at least some brushy growth along fences. A four to six foot strip should be sufficient. Such growth provides nesting and escape cover, feeding places and protected travel lanes. Of course, plants which might harbor injurious insects or destructive plant diseases should be eliminated. *Untold harm is done to the cause of wildlife through the clearing and burning, each year, of all fence lines.* While it is held that such clearing practices tend toward neatness, they nevertheless destroy the nesting and other cover which wild creatures must have, including the food plants and the vegetation on which are found insects eaten by song and insectivorous birds. They also destroy much valuable cover along which game birds and animals travel to other feed. Some persons look upon the leaving of brushy fence rows as undesirable because of the few feet of farm land which may be eliminated from the growing of crops. There are, however, many advantages to be derived from the brushy fence row.

Game is of Great Value to Farmer—It has been pointed out for years that game birds benefit agriculture by eating insects and weed seeds that are detrimental to crops. It has also been shown that game cover benefits agriculture by protecting insectivorous and seed eating birds, which assist materially in holding insects and other agricultural pests in check. The dollars and cents value of wildlife to farmers in this connection is difficult to determine, but is without question enormous.

An estimate of the value of wildlife in destroying insects has been made by W. L. McAtee of the U. S. Biological Survey. This estimate is 22.6 cents per acre for the eastern region of the United States, and 13.3 cents per acre for the western region. These figures indicate that wildlife can be numbered among the farmer's most valuable allies and therefore certainly should be given the proper consideration.

Game Cover Valuable in Preventing Soil Erosion—A considerable amount of soil erosion can be prevented by permitting a heavy grass or shrub growth to remain along gullied areas, stream banks and in strips on steep hillsides. Everyone knows of the evils of soil erosion and of the tremendous toll taken in good soil each year from practically every farm. The dividing of fields into smaller units and permitting strips of sod and low shrub growth between fields or divisions thereof, strips of trees and shrubs along steep hillsides, and the retaining of growth along gullies where there is a rapid run-off of water will go a long way toward preventing this destructive washing away each year of valuable soil. These methods used in preventing soil erosion will, at the same time, be useful to wildlife in providing food and cover. Some of the plants which furnish food as well as cover, and at the same time also act as soil binders, are honeysuckle, bittersweet, blackberry, greenbriar, Virginia creeper, dewberry, and grapevine. Information on remedial measures which can be applied where gullies have formed, is available in Farmer's Bulletin 1234, "Gullies and How to Reclaim Them," which can be obtained from the U. S. Department of Agriculture, Washington, D. C. Valuable assistance can also be obtained from the U. S. Soil Conservation Service, Williamsport, Pa.

Photo by W. Gard. Conklin

Strips of brush and briars along gullies prevent soil erosion and provide wildlife with food supplies and travel lanes.

Flowering dogwood Wild grape *Photos by W. L. R. Drake*

Game Food and Cover Plants Beautify Farms—A farm can also be made more attractive by having a supply of game food producing shrubs and vines along fences, ravines and in woodlots. Much of the growth which provides food and cover for wildlife is also extremely attractive and highly prized ornamentally. Who is not delighted in the spring of the year with the blossoms of the Juneberry, the redbud, or the dogwood? During the fall of the year, as the trees and shrubs of woods and fields put on their autumnal cloaks, we find many of the most attractive are those which provide game food. One immediately picks out a clump of sumac with its blazing scarlet leaves, or is attracted by the deep red leaves of the Virginia creeper trailing over the stub of a dead tree. In the fall and winter, the berries and fruit of many of them are no less attractive. Everyone is familiar with the bittersweet, the winterberry and the hawthorn. In addition to those mentioned, a great many others provide game food and cover and are also pleasing to the eye, either from the standpoint of flowers, foliage or fruit.

Many Small Areas Preferred—Where there are unused, rough, or rocky corners of fields, or where there is a ditch bank or a gully, arrangements may be made by farmers for changing the location of a fence or adding to a fence to exclude these small areas from domestic grazing stock. Such areas should then be planted with one or two clumps of evergreens, briars, and berry-bearing shrubs, a supply of which can be transplanted from other spots, where they are especially plentiful, provided they do not appear naturally because of the added protection. Sportsmen, Boy Scouts, and other interested individuals are always willing to cooperate with landowners in such work in order that the supply of wildlife food and cover will have a wide distribution.

Photo by Seth Gordon

An island of cover in cultivated fields provides a safe retreat for wildlife and provides protection to them while feeding. Rough and rocky nooks such as this should be protected against pasturing. They likewise are excellent places on which sportsmen may establish retreat refuges in cooperation with landowners.

The fencing of small plots in the farm woodlot or worthless patches in fields which will soon grow up to briars and brush, thereby furnishing food and nesting cover for wildlife, is an effective way of benefiting farm game.

In cases where a swale or marshy stretch of ground exists, especially in ringneck pheasant territory, it should be fenced against pasturing stock. The planting, in these areas, of willow cuttings and certain shrubs, such as elder, arrowwood, spicebush, chokeberry, silky and red-ozier dogwood, and winterberry, which grow in moist locations, will help to improve food and cover conditions.

In order to be of most value to wildlife, it must be remembered that a great *many small brushy areas scattered throughout the farm are preferable to only a few large areas.*

Wildlife Affected by Harvesting Operations—Leaving one or more narrow unplowed strips across cultivated fields will provide the necessary cover which is so essential to game birds and ani-

Photo by Seth Gordon

Wildlife is benefited where a portion of the corn is husked on the stalk.

Photo by John B. Sedam

A few rows of grain left uncut along edges of fields near good cover furnishes food for wildlife.

mals, also to the song and insectivorous birds for nesting purposes and in traveling from one piece of cover to another.

A few rows left uncut along the edges of fields of wheat, rye, barley, corn, buckwheat, etc., near cover such as fence rows, thickets, or brushy ditch banks, furnishes food for wildlife. If farmers will husk a considerable portion of their corn crop, especially near game cover, from the stalk *instead of cutting all of it*, the standing fodder and the few missed ears will furnish excellent game cover and food. Shocks of unhusked corn spread out at the bottom and left until spring are also beneficial if located close to suitable cover.

During the harvesting season, valuable cover will be left for birds if the knives of the reapers are set high, at least 8 to 9 inches from the ground. The larger stubbles and ragweed will furnish better shelter for birds that seek waste grains in the field. This growth will likewise enrich the ground when plowed under. Wherever possible, farmers should *defer plowing or mowing weedy stubble strips near fence lines or other cover until early spring.* Doing so will help rabbits as well as game birds. If these areas are to be cultivated in the spring, plowing should be done before the birds and rabbits start using them for nesting and breeding.

The scattering of manure over fields during the winter will provide birds with a considerable amount of undigested grain and weed seeds. If some loose grain is thrown on the manure, it will be more easily obtainable and will not sink into the snow.

Ragweed Valuable—Ragweed grows almost anywhere and provides one of the best foods for quail. After wheat and oats are

harvested, a crop of ragweed will quickly spring up in the stubble fields. Many farmers mow these ragweed fields, leaving them bare as to cover and food for quail, yet the fact remains that there is just as much ragweed the next year as if it had not been cut. No matter how often the fields are mowed, the ragweed returns. If these fields of ragweed in quail territory are allowed to remain standing through the late summer, fall, and winter, they will provide homes for one or more coveys. This is only one of the many cases where wildlife can be increased if the landowner will conduct his operations in a way to encourage it.

Protection to Nesting Birds

Hundreds of ringnecks and quail and thousands of their eggs are destroyed annually during the harvest season in Pennsylvania. This appalling waste could easily be avoided if certain simple precautions were taken while mowing. Farmers wherever possible should use flushing bars on mowing and harvesting machines to prevent losses of game birds and eggs during the hatching season.

When a nesting bird is flushed the knives of the mower should be jumped over the patch of grass around the nest. The birds finding their nests unharmed, will immediately return and finish hatching their broods. It is particularly important that flushing devices be used while mowing the first 30 to 50 yard strips around the outside edges of fields where the majority of the game birds nest. Arrangements should be made by the farmer to take care of the eggs when a nest is accidentally mowed over and the mother bird crippled or killed.

There is a decided need for these flushing devices. Their potential value is almost unlimited. It has been estimated that if only one egg were saved for every acre of land in hay, wheat, oats, etc., over 167,000,000 birds would be saved annually in the United

A few shocks of unhusked corn left near cover will assist wildlife during the winter when it is often existing on short rations.

States. This great potential benefit far outweighs any slight delay or inconvenience or the small value of patches of hay left standing.

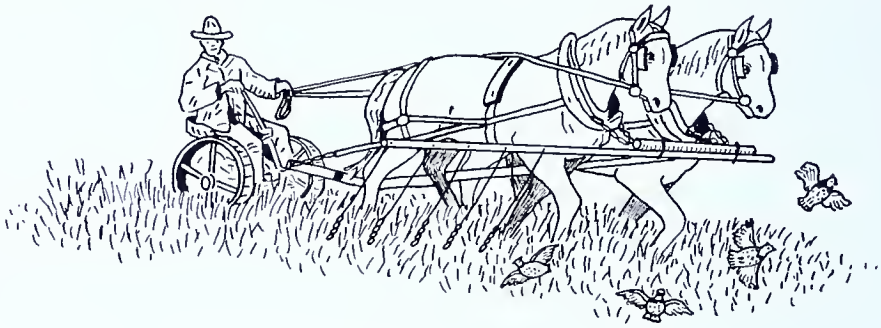
English Type Flushing Bar is Best—A number of different types of flushing bars are now in use. The English type, perfected by Dr. P. F. English in Michigan, has proven particularly effective.

This device consists of a light-weight pole about ten to twelve feet long, attached to the front end of the tongue of the mowing machines, and projecting over the path of the cutter bar.

From this pole, in the approximate positions shown in the illustration, are suspended short wires 8″ to 10″ apart, to the ends of which have been attached short lengths of old chain (old cross links of auto chains are excellent). The ends of the chains should just drag the ground so that in mowing they will sweep over and through the grass.

To prevent the inner chains from tangling in the horse's feet when turning, a diagonal wire should be run from the middle of the pole to that chain, attaching it about half way down the inner wire.

The best means of attaching the pole to the tongue of the mower is to make two single brackets of old scrap iron, in the



The use of flushing bars saves wildlife.

form of a right angle, with each arm about eighteen inches long. These should be drilled for ⅜″ bolts by which they are attached to the tongue. The pole may then be fastened by means of bolts or wired to these brackets. If this method appears too complicated, the pole may be wired to the neck-yoke. However, the brackets are easily made and far more preferable.

Many of the sportsmen's organizations in the State are willing to furnish flushing bars for all farmers who will use them. Any farmer who desires to use a flushing device and cannot find the time to construct one, should get in touch with a nearby sportsmen's organization.

How Sportsmen Can Help—Where flushing devices are not used, sportsmen can assist in locating nests before mowing starts by traveling on foot along the first fifty yards at the edges of fields. Many of the nests can be located and marked with a tall stake or brush firmly stuck into the ground in order that a patch of grass may be easily located by the farmer when mowing starts. He simply mows around, or raises the cutting bar over the spot marked as a nest location. A fairly heavy rope stretched between two men walking abreast, and allowed to drag over the grass prior

Photos by W. L. R. Drake

Hawthorn

Pokeberry

to the time mowing starts is an efficient method of locating nests.

Mowing brush and weeds along roadsides and railroad rights-of-way should be delayed until August, or after. It would be better, where officials in charge of this work are willing, to provide for the cutting of such material every two or three years instead of annually. If material cut along roadsides must be burned, it should be done early in the spring before the nesting season. The same applies to grassy stretches along ditch banks and near hedge rows. These areas should not be burned or pastured during summer and fall.

Sportsmen can aid wildlife materially by conducting educational campaigns to prevent brush cutting or burning at such times and in places where wildlife will suffer as a result of this work.

Producing Food and Cover by Planting

Shrubs and Trees—The planting of clumps of trees, shrubs, and vines which provide cover and food in the form of berries, fruit and seeds should be carried on wherever this material is lacking or where it cannot be produced by protection from domestic stock, or by protection from mowing. The various conifers, such as pine, spruce, hemlock and cedar, provide good winter and escape cover. To be most effective, some of the species planted for cover should form a tangle, or be stiff and thorny, so that in cases of necessity, pursued game can find a safe retreat from its pursuer. Clumps of Japanese rose, sweetbriar, or hawthorn near plantings of conifers insures good cover and provides some food for game.

A Variety of Species Necessary—In arranging for the planting of areas, consideration must be given to a variety of species, selected in such manner as to provide a constant food supply during the entire year. In each clump that is planted there should be some shrubs or vines which produce summer foods and other shrubs or trees which provide food during the fall and winter. Some of the better ones to plant for summer food include the Virginia creeper, Juneberry, cherry, plum, elderberry, blackberry and mulberry. Selections may be made from the following for planting for fall and winter food: bittersweet, hawthorn, sumac, winter-

berry, snowberry, persimmon, viburnum, hazelnut, oak, walnut, wild grape, honeysuckle, mountain ash, crabapple, wahoo, dogwood and Japanese rose. In addition to providing food and cover for game birds and animals, they also furnish protection and food for song and insectivorous birds.

Evergreens for Christmas Trees and Windbreaks—Many farmers have found it advantageous to plant plots of ½ acre or more to evergreens for Christmas trees. If material of good quality is planted it is usually possible to harvest a part of them after the fourth or fifth year and still leave enough for production of a timber crop. These plots of evergreens are also valuable to wildlife as shelter, especially during severe winter weather, and as escape cover. Additional information concerning evergreens is given in Farmer's Bulletin 1453, "Growing and Planting Coniferous Trees on the Farm", which can be obtained from the U. S. Department of Agriculture, Washington, D. C.

Strips of evergreens are also useful as windbreaks in sheltering buildings and orchards from wind. They add to the ornamental appearance and are useful to wildlife as cover. Windbreaks can also be used to hide unsightly spots about buildings, or on the farm, and likewise can be used as living snow fences. Further information on planting for windbreaks can be secured from Farmer's Bulletin 1504, "The Windbreak as a Farm Asset", available through the U. S. Department of Agriculture.

Organized Sportsmen will Assist—Many sportsmen's organizations throughout the State, for several years, have been planting trees, shrubs and vines which provide game food and cover. Any farmer who wishes such material planted on his farm, and who does not have any source of supply, should contact one of the

Photo by John B. Sedam

Evergreens serve as windbreaks, provide income in sale of Christmas trees and furnish excellent cover for wildlife.

sportsmen's organizations in his county and request assistance in securing suitable material for planting. The Game Commission will furnish names and addresses of clubs upon written request.

There is in most sections much valuable material for game food planting which can be transferred from fields where its removal is necessary to locations where it will benefit wildlife. Quite often there are also spots where there is an over-supply, part of which can readily be transferred to other places where it is scarce. Anyone interested in wildlife can very easily carry on such work, which spreads out the supply of food and cover for wildlife.

Solid Foods Essential—In order that wildlife may have a sufficient amount of solid foods, patches should be planted to various cereals or arrangements made with farmers to leave food patches standing when their grains are harvested. Solid foods are particularly necessary for birds in maintaining their high body temperatures during severe weather.

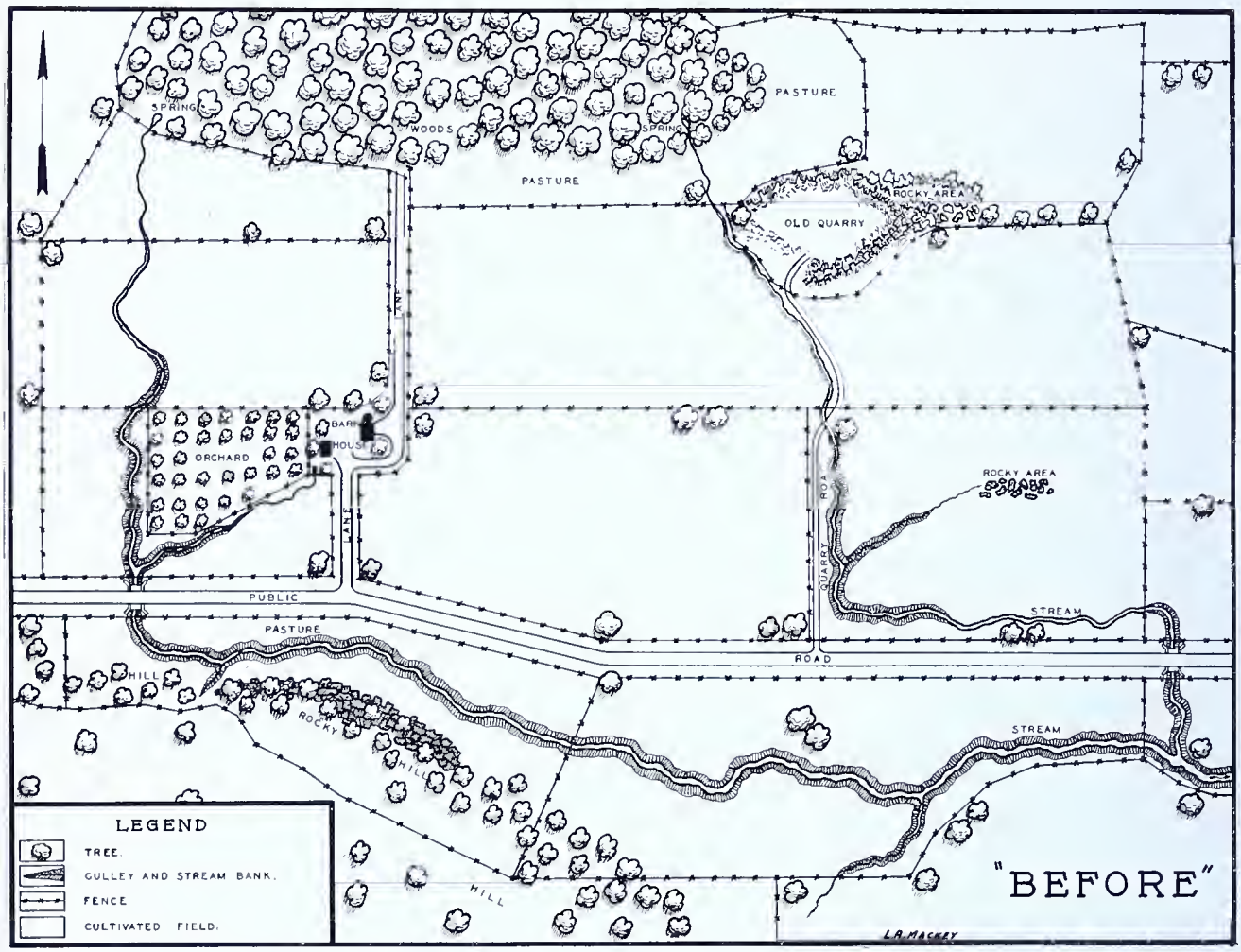
Photo by Leo A. Luttringer, Jr.

Food and cover to be of most benefit to wildlife should be located near each other. The above illustration shows a food strip situated near cover.

Wild plum

Virginia creeper

Photos by W. L. R. Drake

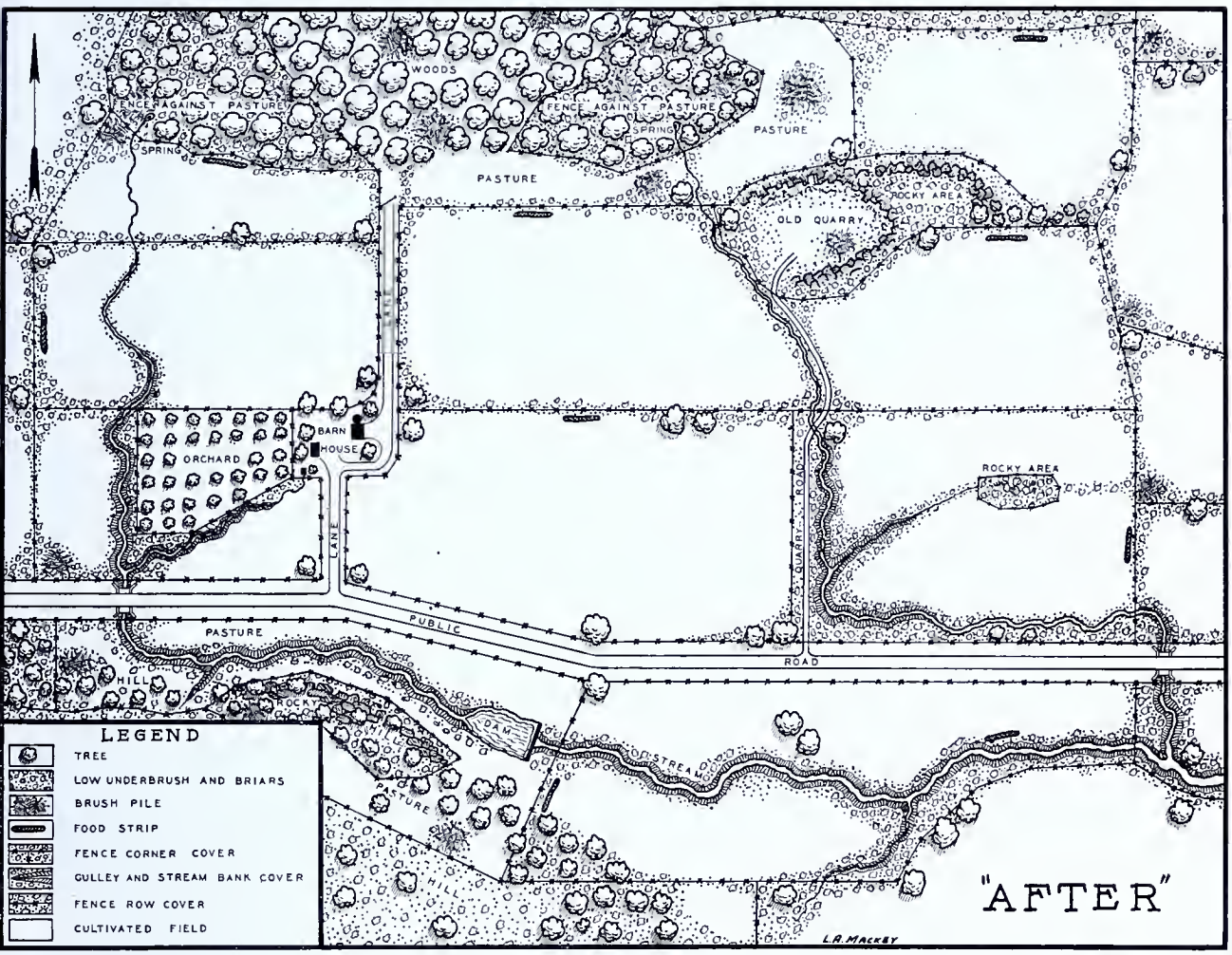


A farm where no consideration is given to wildlife and where lack of vegetation encourages soil erosion.

Blackhaw

Bittersweet

Photos by W. L. R. Drake



The same farm as shown on the left after attention to the needs of wildlife is given. Fence row cover furnishes protected lanes along which quail and other wildlife can safely travel. Vegetation is provided along streams and gullies which prevents washing away of valuable soil and likewise furnishes wildlife with food and cover. Food strips are provided near good cover by leaving part of the crop stand when harvesting or by planting plots. Part of the woodlot is fenced against grazing. A small dam is constructed to provide water for stock, to encourage fish life and to make homes for muskrats. Small rocky waste areas are protected from pasturing stock and permitted to grow up to briars and other vegetation useful to wildlife. Brush piles are placed advantageously in pastures and woodlots as emergency cover for game birds and animals. Fence corner cover makes excellent hiding places for quail, rabbits and ringneck pheasants.

Blackberry

Silky dogwood *Photos by W. L. R. Drake*

There are a great many grains, grasses, legumes and weeds which furnish excellent solid food for game birds and animals. Some of those suitable for game food patches are field corn, kaffir corn, buckwheat, sorghum, wheatland milo, sweet corn, broom corn, wheat, barley, flax, millets, oats, proso, vetch, sudan grass, lespedesia, sweet clover, sunflower, soy beans, cowpeas, and field peas. Climatic conditions in different parts of the State will govern the varieties to plant for farm game and wild turkeys in each section.

Various mixtures of seeds may be used in food patches. The purpose of such mixtures is to provide in a single plot a continuous supply of food from August until spring by selecting some plants which mature their seeds early, and others which mature seeds later and remain on the stalk during the winter. Likewise, in a mixture some strong-stemmed plants must be provided as supports for the weaker-stemmed ones. This is necessary in order that part of the available food supply is held above the snow during the winter. It is always advisable when planting mixtures to consult the County Agricultural agents, or State Agriculture Experiment Station, since they are acquainted with local conditions and will know whether or not good results can be expected. The Pennsylvania Game Commission has worked out a mixture of seeds that is recommended for planting. Details can be secured by writing to the Pennsylvania Game Commission, Harrisburg, Pa.

Using Grains to Advantage—Kaffir corn with a sprinkling of field corn furnishes excellent game food. Planting of buckwheat or millet broadcast at the last cultivation of corn provides desirable game bird food, while the corn furnishes both food and cover. Sudan grass in this mixture likewise is very beneficial in providing cover.

There is probably no practice of more benefit in feeding and holding game than that of arranging for a few rows of uncut corn in a field near a brushy fence row or along the edges of the woodlot. The corn stalks furnish cover, the food on them is always present when needed, and it remains in good condition until late in the winter.

In any game food planting program it is essential to *have the plots widely scattered.* Plots or strips of 1/8 to 1/2 acre scattered

over an area are preferable to large ones. They should be rectangular in shape rather than square. Patches must be provided not more than two or three hundred feet from good natural cover, such as a woodlot, hedgerow, a brushy ditch bank, and arrangements made for travel lanes provided with good cover, in order that it will be unnecessary for game to be exposed to predators and inclement weather in reaching the food.

Where special plots are set aside for game food it is a good plan to have the food patch large enough so that part of it may remain fallow each year while the other part is planted. It has been found advantageous to plant about one-third of the plot in good winter food, about one-third in legumes, and permit the remaining one-third to be in sod. These areas, of course, are then rotated from year to year. The unplanted areas provide nesting sites for birds and will usually provide some food in the form of weed seeds and volunteer grains.

Good Rabbit Foods—Where rabbits are abundant, plenty of corn, sorghum, barley, clover, vetch, rape, kale and oats should be planted to provide them with summer, fall and winter food.

Sweet clover planted around gravel pits, eroded gullies, stone quarries, along roadsides and other unused places furnish very good cover for game and food for rabbits. It also benefits the farmer by building up the soil and in preventing erosion.

In sections where there are wild turkeys, arrangements should be made for food patches for them near woodland or in small clearings which are available within wooded areas.

Volunteer foods, consisting of various weed seeds, can often be secured by having parts of abandoned fields plowed, or disced. Soils very often contain great numbers of seeds of various kinds which have lain dormant for years. They germinate when influenced by the sun and other conditions. Plowing, or discing, brings about favorable conditions for part of these weed seeds, especially ragweed which produces one of the best quail foods.

Photo by C. C. Freeburn

If waste spots are permitted to grow up they will provide shelter for game birds and animals as well as many song and insectivorous birds.

Photo by C. C. Freeburn

Ground cover and food for wildlife are deficient in over-grazed woodlots. Parts of the woods should be fenced against pasturing livestock. Over-grazing also eliminates young growth needed to perpetuate the woodlot.

The Farm Woodlot

Most farms have within their boundary one or more wooded areas, or thickets, usually called the farm woodlot. These farm woodlots play a very important part in any upland game management program. As a rule each woodlot contains along its edges shrubs and vines which produce food. There are usually, throughout the woodlot, nut producing trees and hollow trees which provide excellent conditions for squirrels. They, likewise, contain many suitable nesting grounds for birds and hiding places for rabbits.

Some of the fruit-bearing shrubs which furnish food for wildlife, and which should, wherever possible, be left uncut in woodlots and other spots where they do not seriously interfere with farming operations, are wild rose, thorn apple, dogwood, black haw, grape, crabapple, elderberry, sumac, blackberries, raspberries and huckleberries.

Grazing Should be Controlled—Grazing of domestic stock in the woodlot by all means should be held down to the very minimum. A small amount of pasturing may not be particularly destructive, but the tendency is always toward over-grazing, which eliminates the young growth so necessary to the perpetuation of the woodlot. Woodlots are very desirable in furnishing shade to pasturing livestock, but this can be provided without permitting the animals to destroy young growth over the whole area.

Grazing kills many of the trees, shrubs, briars, and vines which provide food and cover for wildlife. It likewise destroys many nests of birds and much valuable nesting ground which otherwise would remain unmolested.

In order to provide for wildlife it is, therefore, necessary to *eliminate grazing entirely in the woodlot or confine it to a small portion of the woods which has been fenced.* If this cannot conveniently or advantageously be done, comparatively large areas within the woods should be fenced against livestock and therefore given a chance to produce valuable and necessary growth for wildlife.

Greenbriar and Blackberry Thickets Provide Excellent Cover—Where there are very few berry-producing shrubs in the woodlot, clumps of these should be planted where they will receive sunlight. In many cases part of the supply can be transferred from places where it is unusually plentiful to the locality where there is an insufficient amount. Clumps of greenbiars or blackberries provide food and make excellent escape cover, and are easily transplanted from one place to another. Sportsmen should request the landowner's permission to transplant sufficient game food producing shrubs and vines in order to give just as wide a distribution of them as is possible.

If the woodlot has a considerable quantity of large trees which have shaded out the undergrowth, some of the larger trees should be selected for cutting when securing the winter's firewood or when getting fence posts. The increased sunlight which reaches the ground by removing some of these trees will promote the growth of the understory of plant life and thus increase the food and cover growth. In any cutting operations it is extremely important to *leave standing a number of hollow trees or den trees* to provide homes for squirrels and hole-nesting birds. Such furbearers as raccoons and opossums likewise depend upon hollow trees and logs for homes. It is advisable to leave such material in order to encourage these animals.

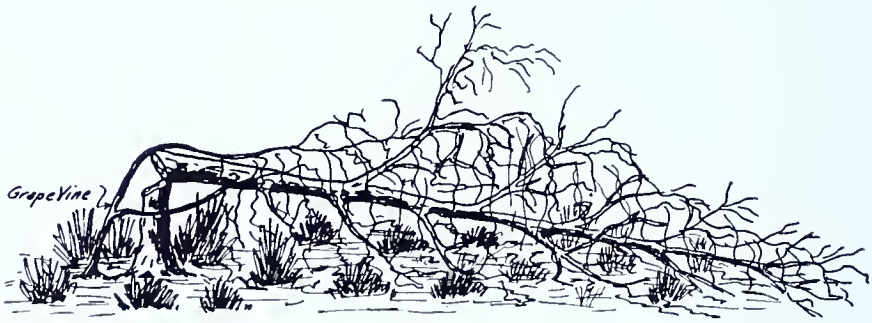
Grapevines are Useful—Grapevines should be permitted to remain unless they are actually damaging very valuable tree growth. In many cases grapevines, bittersweet, or Virginia creeper are growing high on trees of little commercial importance. In such cases their value to wildlife will be greatly increased if the tree,

Photo by Gordon Kreible

A border of valuable shrubs and vines which provides food and cover for wildlife is usually found in ungrazed woodlots.

but not the vines, is partly cut through, about two feet above the ground, then pushed over and the vines permitted to grow over the top of the felled tree.

Grapes are relished by many kinds of wildlife and their supply should be increased wherever possible. This can often be done by "cuttings" or by "layerings". The planting of grapevine cuttings near the tops of felled trees or along fences and near brush piles requires relatively little work and it results in an increase of the game food and cover supply. The layering of grapevines and later removing the resulting rooted plants to other locations, such as stone walls, fences, brush piles, etc., is easy to carry on.



Where a grape vine, bittersweet or Virginia creeper runs up on or near a tree of little commercial value, cut the tree, but not the vine, and permit the vine to form a tangle over the fallen top. Makes a better cover if cut in summer time when leaves are on and not cut entirely through the stem. Permission must be obtained from the landowner.

A large variety of woody plants which provide game food and cover can be successful propagated either by "hardwood cuttings" or by "layering".

Producing Food and Cover by Grapevine and Other Cuttings—When propagating by cuttings, the wood should be taken from the current or previous season's growth and should be cut in sections twelve to sixteen inches long with each section having at least three buds. Cuttings may be made in late fall or early spring when the wood is dormant. The cuttings should be tied in bundles of from 25 to 50, butts all one way, and buried bottom up in a trench and completely covered with sand or soil to a depth of 2 or 3 inches. They may also be kept over winter in a cool place such as a cellar by burying in moist sand or moss.

In the spring the cuttings are removed from the place where they are stored and planted about 3 or 4 inches apart in trenches with one bud above the ground. Cuttings are left in the trench until the following spring or fall, after which they are ready for planting in their permanent locations. Where the weather and soil conditions are favorable, cuttings may be put in their permanent location without first planting in trenches. This is especially true of willow and poplar cuttings.

A few of the plants that produce game food and cover which can be propagated readily from cuttings are grape, coralberry, willow, bittersweet, Virginia creeper, honeysuckle, wild rose and nightshade.

Producing Game Food and Cover by Layering Plants—When

Photo by Dr. George M. Sutton

Stream bank cover helps wildlife, provides better conditions for fish and assists in preventing soil erosion. It also makes better conditions for muskrats.

propagating by layering the top of the plant or a section of the stem is covered with soil. Being buried causes additional sprouts or plants which may then be cut from the parent plant and moved to another location, or if needed at its present location, permitted to remain and grow there.

Some of the plants that are easily propagated by layering are blackberry, raspberry, grape, bittersweet, hazelnut, and wild rose.

Fur Bearing Animals Add to Farm Income

Muskrat Most Valuable Fur Animal—The value of furs taken from fur-bearing animals in Pennsylvania each year averages more than $1,000,000.00. A large majority of those who trap fur animals includes farmers and their sons who depend upon this source of revenue to increase the farm income.

This extremely valuable resource is very much neglected and little attention is given to the fur animals except when it comes time to trap and skin them.

The two principal fur-bearing animals which are ordinarily trapped in the farming sections are the muskrat and the skunk. The muskrat is the most important of all fur-bearers. It is found in nearly every section of the State where there are streams, ponds or marshes. Marshy areas with sluggish water are preferred haunts. Banks of creeks and ditches are excellent possibilities for the production of muskrats and minks.

Many times the farmer considers his marshy or swampy places as entirely worthless. As a matter of fact he can make them as profitable as any other part of the farm. Instead of attempting to drain them, or using them as dumping grounds, they should be fenced against pasturing stock and perhaps a small

dam built at the main part of the stream. Preventing grazing along stream banks will also assist in attracting muskrats and the resulting vegetation will likewise protect the banks of the streams from erosion. Many such places as marshes and stream banks are havens for muskrats and other fur animals, as well as other wildlife. Muskrats will multiply where conditions are favorable. They are the most prolific of fur-bearers, raising as many as three litters of from four to nine young each year. If the places which are their natural homes are given some protection, they will, therefore, increase fast enough so as to yield a profitable annual crop of fur.

The principal food of the muskrat is aquatic or water plants, mussels and sometimes crayfish and fish. It is usually possible to encourage the necessary vegetation on which they feed. Pasturing stock destroys the muskrat food along the streams and marshy places on the farm. When grazing is prevented in such places, food plants will usually make their appearance. As a start, it may be necessary to plant some willow cuttings or other common native species mentioned below. Willow shoots are cut by muskrats and stored as winter food. Other water plants which furnish desirable food or cover for muskrats are cattail, sweet flag, three cornered grass, bulrush, duck millet and reed grass.

The money received from these animals which are trapped in the winter will be a welcome addition to any farm income, especially of the boys interested in laying aside funds for school use.

Skunk is Important Fur-Bearer—Another fur animal usually found around farming areas is the skunk or "polecat." It is next to the muskrat in importance. It is a creature of pastures or open ground near borders of thickets or woodlots. He prefers open places alternating with shade and shelter. His value to the trapper is unquestioned. This animal along with the muskrat forms the back bone for the fur industry in this State. During the past

Photo by A. C. Ganster

Cover in marshy areas near cultivated fields provides excellent conditions for quail and ringneck pheasants. They are likewise valuable places for muskrats.

three years the value of skunks taken by Pennsylvania farmers, boys and others engaged in trapping amounted to $909,250, or an average of more than $300,000 annually.

The skunk in reasonable numbers should be encouraged and protected because of his fur value. When the animals become so numerous as to cause serious losses to poultry or nests of eggs his numbers should be reduced. The skunk, however, is probably 75% beneficial on the farm aside from his fur value. They usually feed upon insects, white grubs, mice, rats, frogs, grasshoppers, small birds, eggs, fruit, berries and occasionally poultry. They turn over many rocks in the fields in search of beetles and often dig out the nests of yellow jackets. Fifty to ninety percent of the skunk's food is composed of beetles (including the larvae of the Japanese beetle), wasps, grasshoppers, grubs and numerous other destructive bugs and insects, including potato bugs.

The home of the skunk usually consists of a burrow, hollow log, or stone pile in which the young, numbering from four to twelve, are born about April. The skunk will live in a den dug by another animal, but he can dig his own den.

Raccoons and possums are other fur bearers found at times in farm woodlots or in forested areas adjoining the farm. They usually depend upon hollow trees or logs for homes. To encourage these animals a number of hollow den trees must be left standing by wood cutters. This also will assist squirrels and certain hole nesting birds.

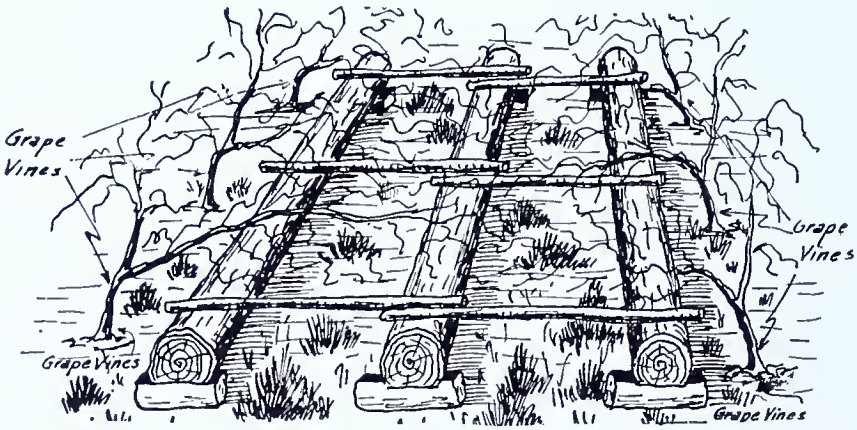
The best way to encourage fur-bearers is to provide them with places on the farm which are to their liking. Do not trap or kill them until the furs are prime. Do not destroy their dens or homes. Do not destroy them wantonly unless they have become too numerous. Perhaps the good which is done will outweigh the loss of a chicken or a few corn stalks which are stolen when other food becomes scarce.

Bounties Are Paid on Certain Predators—Bounties are paid by the Pennsylvania Game Commission on certain animals and birds which are considered detrimental to valuable wildlife and to domestic poultry. Each year more than $100,000 is paid to residents of the State as bounties for the killing of predators. A great deal of this bounty money goes to farmers and farm boys. At this writing, bounties in Pennsylvania are paid as follows: Gray fox, $4.00; weasel, 50c (entire year); adult goshawk and great horned owl, $2.00; fledgling goshawk and great horned owl, $1.00 (Nov. 1 to May 31). All monies used for the payment of bounties come from part of the funds received from hunters in the sale of licenses. The hunter, therefore, is contributing funds for the control of predatory animals and birds which destroy poultry and at the same time many farmers or farm boys also benefit from the bounties collected on such creatures. In the case of predatory animals, there is likewise an additional income from the sale of the furs from these animals.

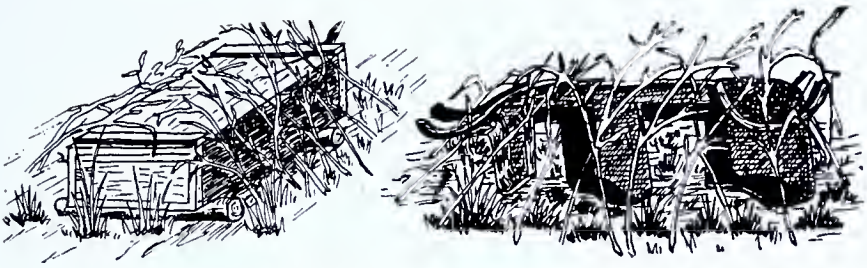
Artificial Emergency Cover

The value of cover as an aid to wildlife has been previously pointed out. Without cover, birds and animals are exposed to attacks by predators and are endangered during the winter by difficulties in finding sufficient shelter from the elements. The most satisfactory conditions for game can be secured through the provisions for *natural cover*, such as trees, briars, shrubs, vines, grasses, and weeds, as was previously pointed out. There are, however, many areas useable by game which are lacking in suitable natural cover and will require a long time to be developed. In such cases artificial cover of one kind or another should be provided.

Temporary *artificial* cover can be provided quickly and without cost, except a little labor, if those interested in the welfare of game will build many temporary retreats and shelters, such as are outlined in several of the following paragraphs. Their locations are very important. They can be placed in pastures, over-grazed woodlots, abandoned fields, and other places where shelter is deficient. Where there is no possibility of protected travel lanes, the retreats should be placed close to each other. Where these are built by sportsmen or persons other than the landowner, consent should be obtained from the owner. It is important wherever possible to *cover over retreats with plenty of brush* as an added protection from dogs. It has been found that it is impossible to get too much brushy cover over these artificial retreats.



Brush piles with supporting logs or stones underneath can be used to provide space for escape cover for rabbits, grouse, quail and ringnecks. Cutting of grape vines, or some other vine such as bittersweet or Virginia creeper, set near the pile will assist in furnishing food. Logs should be 8 or 10 feet long and spaced about 4 feet apart with plenty of cross poles to prevent brush from sagging to the ground. Logs should not be raised more than about 6 inches above the ground in order that dogs cannot get underneath.



Abandoned Wagon bed — Abandoned Car body

Discarded wagon beds, auto bodies, old sheet iron and other worn out materials can be made into good temporary retreats and suitable places under which to place feed for game if this material is placed in good locations. They should be well covered with brush.

Good Temporary Retreats—Discarded wagon beds, auto bodies, old sheet iron and other wornout material, if supported by logs or stones and well covered with brush, can be made into good temporary retreats and suitable places under which to place feed for game if these artificial shelters are located advantageously.

Poles, logs or discarded fence rails, piled as shown in the sketch, and spaced about five inches apart and heavily covered with brush, furnish excellent hiding places for rabbits and other game.

Arbors made in openings in the woods around which are planted grapevines, grapevine cuttings, bittersweet, greenbriar, or Virginia creeper, furnish food and cover for wildlife after the arbor becomes covered. Locust posts should be used when available. Rough poles can be used on the sides and top. Posts should be about six feet long and placed in the ground two feet.

Stiff crooked brush, particularly oak branches, placed in small piles on grass sod makes very good bedding grounds for rabbits. This should be placed in a field or pasture with southern exposure, near a woodlot or briar thicket.

Discarded wire or old bed springs laid on logs or stones and well covered with brush are used as retreats and winter feeding

Two rows of stones set on edge with flat ones laid crosswise as above, then other stones or brush piled up over the whole tunnel makes a desirable escape cover for rabbits. The bend in the tunnel prevents hunters from driving the game out by poking a stick in the opening. The opening should be about 4 or 5 inches square and each section 4 or more feet long.

Discarded fence rails, poles, posts, etc., in various desirable places are good hiding places for rabbits, if placed on logs laid crosswise so that the pile is raised about 6 inches above the ground. Brush piled over the rails will afford protection from dogs. Grape vines planted around the pile will increase the food supply for birds. Part of the supply of vines or briars from other locations might well be transplanted to such places.

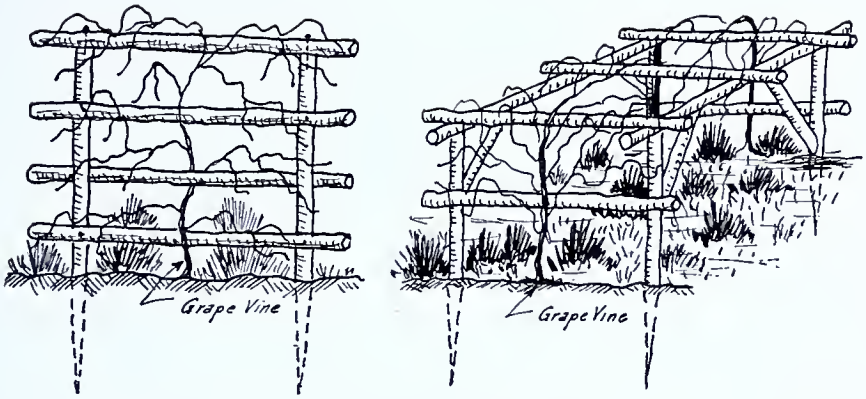
shelters by quail, rabbits and ringnecks. The log or stone supports should be spaced about four feet apart and be eight to ten feet long, and raised about six inches above the ground.

An excellent retreat for rabbits can be provided by building up a stone heap in such a way as to make possible easy entrance to the interior as shown in the sketch on page 40. Large stones are laid at the bottom so as to provide several entrances to the center. The center is left open, thereby making a resting place.

The stone pile can be any shape, but a somewhat circular one about ten feet in diameter has proven very satisfactory. The top of the heap is covered with earth to make the retreat warmer in winter and cooler in summer.

Pruned Branches for Rabbits—Branches pruned from fruit trees make good rabbit food and shelter during fall and winter. These branches can be used to advantage where rabbits are damaging an orchard. The pruned branches are piled in or near a thicket just outside of the orchards or left lying as they fall from the trees. The rabbits will feed on the bark from the prunings. Grain also may be placed under the piles of branches as an added attraction to keep them from damaging the orchard trees.

Two logs 8 or 10 feet long laid side by side about 6″ apart, and well covered with brush or stones, provides escape cover for rabbits or ringnecks.

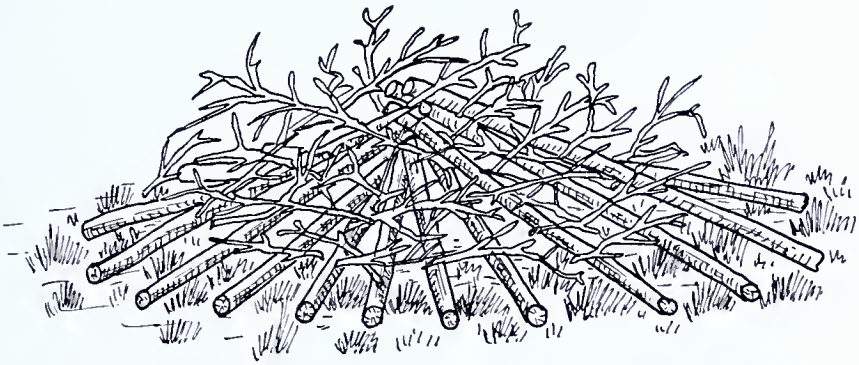


Arbors made in openings in the woods around which are planted grape vines, grape vine cuttings, bittersweet, greenbriar, or Virginia creeper, furnishes food and cover for wildlife after the arbor becomes covered. Locust posts should be used when available. Rough poles can be used on the sides and top. Posts should be about six feet long and placed in the ground two feet.

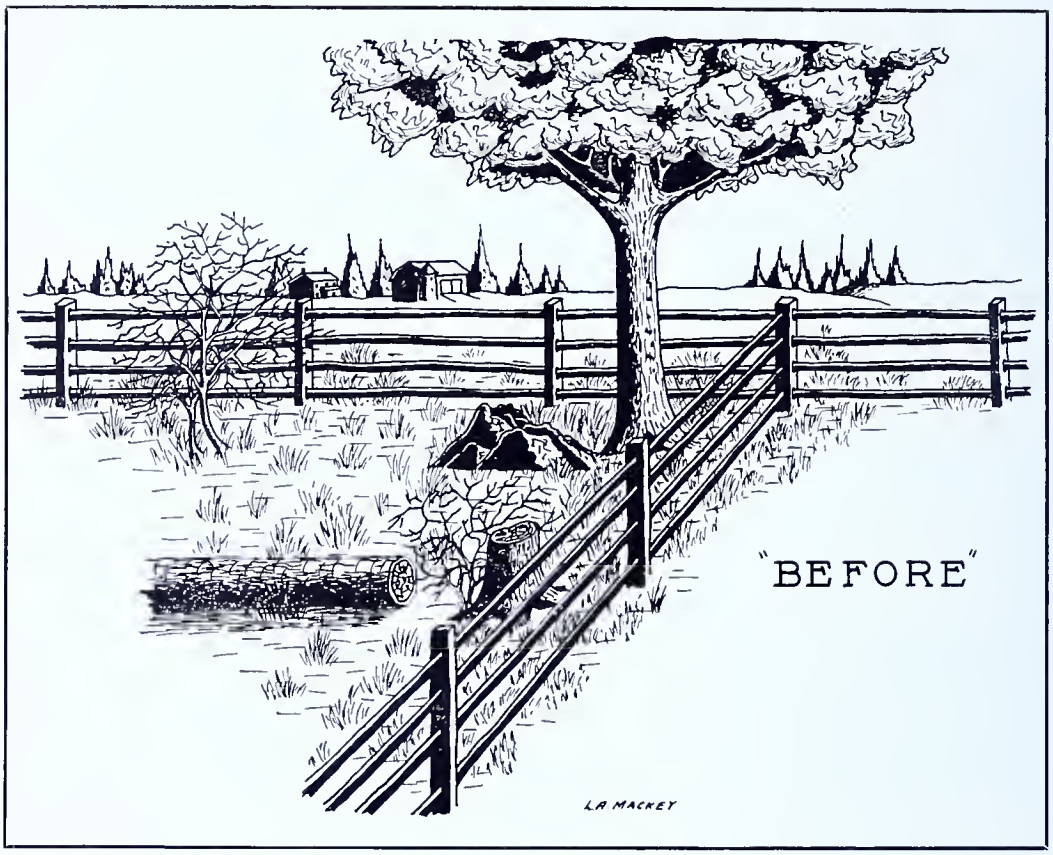
How Artificial Escape Cover is Provided—Brush piles *with supporting logs or stones underneath* can be used to provide space for escape cover for rabbits, grouse, quail, and ringnecks. Cuttings of grapevines, or some other vine such as bittersweet or Virginia creeper, set near the pile, will assist in furnishing food. Logs should be eight to ten feet long and spaced about four feet apart with plenty of cross poles to prevent brush from sagging to the ground. The logs should not be raised more than six inches above the ground; this will prevent dogs from getting underneath.

Discarded culvert pipe, hollow logs, or old tile laid in a brush or briar thicket and covered heavily with stones and brush makes good escape cover for rabbits. With sufficient brush covered over them they make ideal retreats to locate in old fields and pastures.

Two rows of stones set on their sides with the flat ones laid crosswise, as shown in the illustration, then a large mass of other stones or brush piled up over the whole tunnel, make a desirable escape cover for rabbits. A bend in the tunnel prevents hunters from driving the game out by poking sticks in the opening. This opening should be about four or five inches square and each section four or more feet long.



Poles, logs, or discarded fence rails, piled as shown above and spaced about 5 inches apart and heavily covered with brush, furnish excellent hiding places for rabbits and other games.



Odd and unused corners on farms should be provided with cover for wildlife as shown on following page.

Winter Feeding of Wildlife

Where an adequate supply of natural food is not available for game, or where deep snow renders the supply inaccessible, it is necessary to resort to artificial feeding during the winter months.

In many cases large losses result to food supplies intended for wildlife because of snow storms, which often follow the placing of food.

In order to overcome these losses and to prevent the food from becoming covered with snow it is essential that it be placed under some form of shelter. Suitable natural cover, where it is available, should be used as a protection to the food supplies. Such cover includes evergreen thickets, brushy fence corners, and dense briar patches.

Where provision has not yet been made for good natural shelter under which to carry on feeding operations, artificially constructed shelters should be used. It is always desirable to place these as close as possible to some form of natural cover which furnishes added protection from predators.

Many valuable suggestions for the building of shelters, and for feeding of wildlife during winter are contained in Bulletin No. 11, "More Food for Upland Game", a copy of which can be secured without cost from the Pennsylvania Game Commission, Harrisburg, Pa.

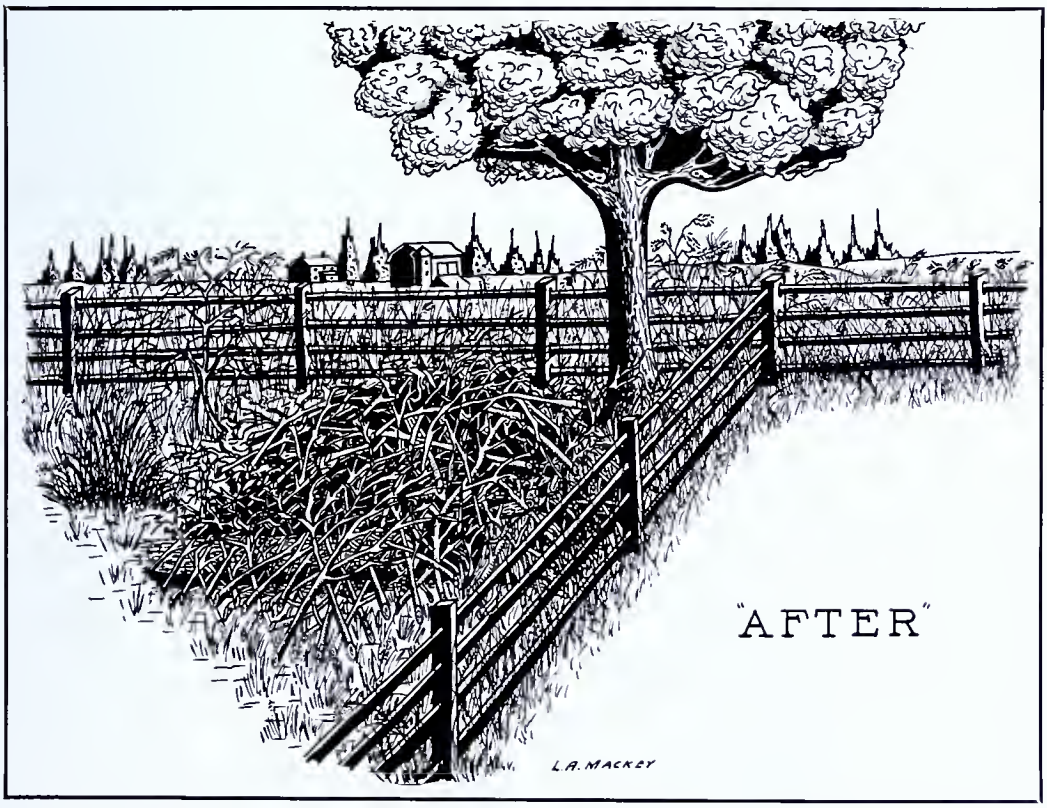
Refuge or Sanctuary Areas

Sanctuary Areas Save Breeding Stock—Sportsmen in many parts of the State have made arrangements with landowners whereby numerous small sanctuary or retreat areas are set aside for the benefit of wildlife. No hunting whatever is permitted in such areas and, consequently, they provide a haven wherein pursued wildlife may escape heavy gun pressure. By carefully selecting these retreat areas sufficient game is held over for the next year's breeding.

The principle is the same as the Game Commission's refuge system which has proven so successful in the large forest areas, and more recently in the newly adopted program effective in a few farm-game counties in two of the more thickly populated regions of the State.

These sanctuaries need not be large. Areas of a few acres (2 to 25 each) in particularly desirable locations for game birds and animals (the place to which they invariably go when pursued) will save annually enough seed stock to insure a continued supply of game in the adjacent territory. These protected areas likewise make favorable locations in which to feed during the winter, and in which available stock from game farms can be placed.

A great many more of these small sanctuaries should be established and maintained by sportsmen in their favorite hunting territory. Of course cooperation of the landowner is necessary in setting aside these areas for the benefit of wildlife.



If some brush is piled in odd and unused corners, and if vegetation is permitted to stand, it furnishes effective cover for quail, rabbits and ringneck pheasants.

How Sanctuary Areas Are Established and Marked—The sanctuaries, to be effective, must be placed in the natural habitat for the kinds of game to be protected, such as in farm woodlots, briar thickets, marshy areas, or ravines, with plenty of food and cover. They should be marked by a brushed line four to six feet wide and surrounded by one strand of No. 9 galvanized wire, placed about waist high.

Printed posters should be placed around the wire, close enough that one poster may be seen from the other. The wording which has been used by different organizations varies somewhat. A type which has proven effective is outlined below. It will be noted that the owner must agree to prohibit trespassing on that part of the farm set aside as a sanctuary or retreat. The remainder of the farm is open to public hunting. The purpose of the "No Trespassing" provision is to give legal status to the retreat area. Prosecutions for unlawful entry can be made under the "No Trespass" act when the poster is signed by the proper person.

WILDLIFE SANCTUARY
NO HUNTING
ALLOWED

This Retreat is Provided so That
Wildlife May Have a Place to Escape and Breed in Safety
Under Natural Conditions

HELP US DEVELOP AND PROTECT IT

. . . . . .

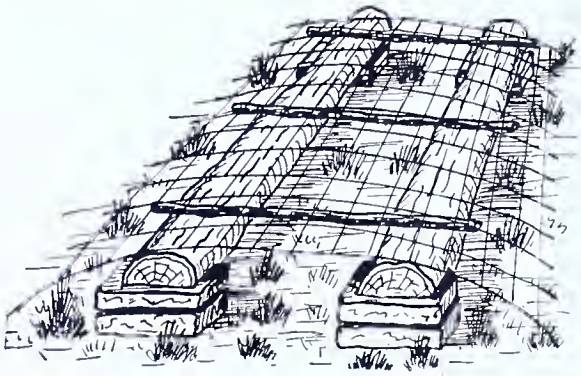
(Here Print the Name of the Sponsoring Organization)

PRIVATE PROPERTY
NO TRESPASSING

Trespassing on This Private Property for the Purpose of Hunting is Forbidden Under Authority Contained in the Act of April 14, 1905, P.L. 169, as amended.

Signed. . . . . .

Owner of Property.



Discarded wire or old bed springs laid on logs or stones and well covered with brush, are used as retreats and winter feeding shelters by quail, rabbits and ringnecks. Should be spaced about 4 feet apart and be 8 to 10 feet long, and raised about 6 inches above the ground.

Stray house cats kill much valuable wildlife. *Photo by Dr. C. S. Apgar*

Cats and Dogs Must Be Controlled

Cats and dogs are valuable in any farming community, but if not properly controlled they can be classed among the worst menaces of wildlife.

Cats often will kill the hatching mother bird or even destroy eggs of song and game birds prior to hatching. They will kill young song birds in the nest. They will eat young rabbits as well as baby quail and ringneck pheasants. The farmer who wishes to increase the number of game and insect-eating birds on his farm should not keep more cats than absolutely needed, and these should be kept properly controlled.

Farm cats should be locked in the barn or corncrib at night where there is no chance of their doing harm to wildlife, and where they may do some good in catching mice and rats. If allowed freedom at night, they roam over the countryside destroying song birds and disturbing or killing coveys of young game birds.

Some persons, especially the town people, make a practice of carrying unwanted cats into the country and dumping them along the roads or in the farm yards instead of humanely killing them. Realizing that such practices compel the cats to make a living off the country and thereby constitute a public nuisance and a menace to wildlife, the Pennsylvania Legislature in 1937 provided that a penalty of twenty-five dollars ($25.00) shall be imposed upon anyone who releases a cat in the country to shift for itself. Stray and unwanted cats should always be killed.

Dogs are not as destructive as cats, but they should not be permitted to run at large, especially during the nesting and breeding seasons. At such times they naturally do a considerable amount of damage and should be kept tied. At other seasons they should not be allowed to roam the fields unless under the control of a competent person.

Conclusion

Farmers and sportsmen can be mutually helpful to each other and by cooperation provide a more favorable habitat in any section for wildlife. The farmer should remember that only a small percentage of those who hunt will damage his property. He should always permit those who respectfully request permission the right to hunt. By granting permission to the ones who come to the house and ask, he is enlisting help in protecting his property from the very few who might do wrong.

A good sportsman is always on friendly terms with the farmer. As a means of cementing this friendship, he should visit the landowner or tenant in his favorite hunting territory occasionally and give every possible assistance to the farmer in wildlife food and cover development on his farm. This will show an interest in game other than shooting it. The only contact many hunters ever have with landowners is when they tramp over the fields with their guns on their shoulders and with their dogs ranging the fields. It would be a splendid thing if the sportsman would visit his various hunting spots during other seasons of the year and do his bit to increase and perpetuate wildlife. It must also be remembered that in these days of intensive development, clean farming methods, good roads, automobiles, more leisure time, and an ever-increasing number of hunters, game must have some attention during the entire year. It cannot be left to shift for itself. It must not be forgotten from one hunting season to another.

As was previously pointed out, one of the first considerations for wildlife should be provision for good homes and plenty to eat. The Pennsylvania Game Commission is doing all the development work of this kind that possibly can be done with the limited amount which can be budgeted for that purpose. The Commission's efforts of necessity must be confined to its own State Game Lands and Game Refuges. Development of game food and cover and other wildlife activities must be carried on over the other additional millions of acres in the State. If the work is to be conducted over all areas it will, of course, be necessary for those interested in the cause of wildlife conservation to assist. If every interested individual did just a little bit, instead of depending upon a few to carry the load, it would go a long way toward restoring favorable wildlife environment over many areas.

Probably sportsmen have a greater interest than most individuals, although wildlife means just as much to many other groups interested in nature. If, however, only the 600,000 licensed hunters in Pennsylvania devoted just one day each during the year, it would be the same as employing 2,000 men for a whole year—figuring, of course, that there are 300 working days to the year. Two thousand men working for one year on game restoration could accomplish real results. If, in addition, their work were coordinated with other interested individuals, and groups, and with the landowner on whose property work is conducted, there would be no necessity for concern over the future game supply.

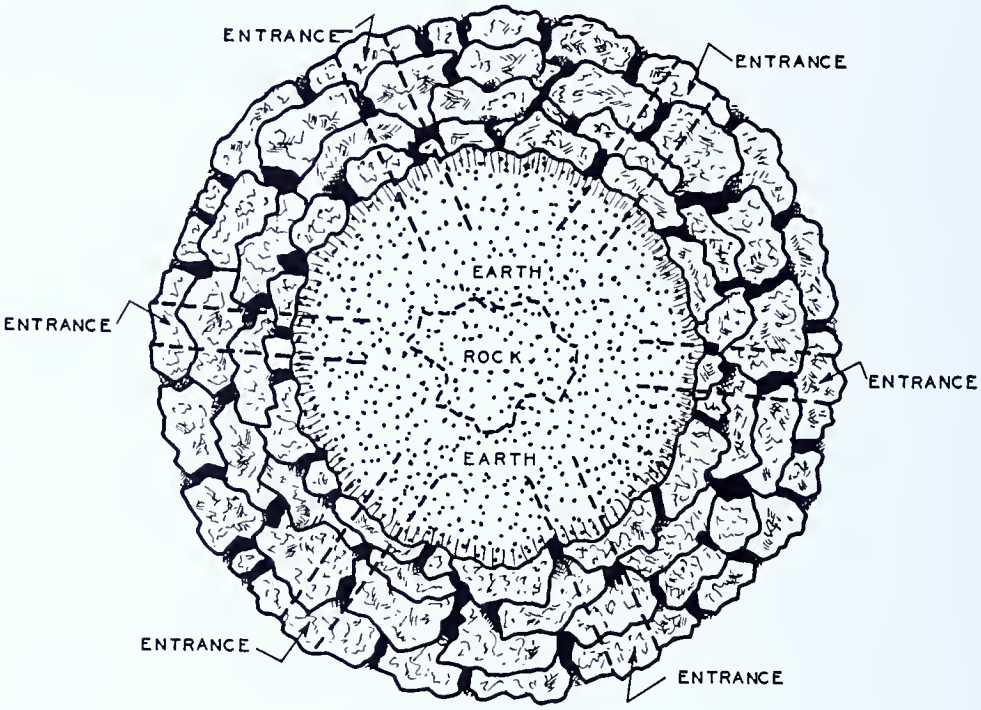
To be most effective the work naturally would need to be carried on year after year, but after all, one day a year is not much to contribute to such a worthy cause.

Probably nothing has been more detrimental to wildlife than the so-called clean farming practices. When agriculture becomes too intensive with all brush removed from along fences, streams, gullies, and around quarries, and rough nooks brought under cultivation, conditions favorable to wildlife are considerably lessened. Where such intensive cultivation is carried on some modification of the farm practices must be made if wildlife is to be encouraged. There is probably no other group who live in an environment as close to nature as farmers. There is no other group who would be more loath to see the disappearance of valuable wildlife, and speaking from the writer's knowledge, gained over many years of close association with farmers, I can safely state that no other group will be more willing to assist in maintaining good homes for our wildlife friends.

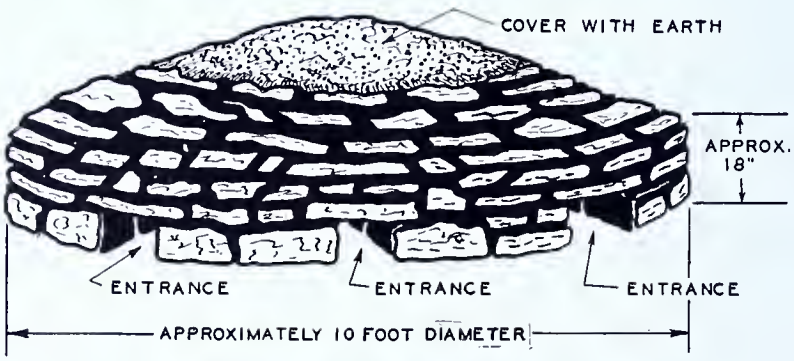
We cannot devise, or plan, any one set layout for food and cover development that would apply to a number of farms. Each farm has its own individual characteristics that cannot be covered in a general plan.

It is therefore suggested, before starting any actual food and cover work on a farm, that the farmer and any sportsmen who may be interested look over the entire area. They can then pick the various locations of the different tree and shrub plantings which may be needed, lay out a system of travel lanes, plan grain food plot locations, where artificial retreats should be built, spots where fences should be shifted, places where natural growth can be encouraged, etc. A suggested layout is shown on page 21 of this pamphlet and may be used as a general guide in planning improvements.

If there are any individual problems upon which farmers or sportsmen wish information, they may secure it by writing to the Pennsylvania Game Commission, at Harrisburg, Penna., or by contacting the nearest Game Protector.



TOP VIEW



SIDE VIEW

L A Mackey

An excellent retreat for rabbits can be made as shown in above illustration. Large stones are laid on the bottom in such a manner as to provide several entrances to the center. The top is covered with earth to make the retreat warmer in winter and cooler in summer. These can be either circular or rectangular in shape. The center should be left open to provide a resting place. Briars planted around the pile increase its effectiveness by furnishing food and additional cover. It has been found from experience that quail likewise use these retreats.

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SAVE MY HOME

MR. BOBWHITE SAYS:

Save the old briar patches and other shelters if you want us around.

Don't cut all brush along fences and gullies. We need them for protection from enemies and as travel lanes.

Help protect our nests—use a flushing bar.

Keep your cats and dogs under control.

Leave some feed for our use in winter.